Catalogue of American Amphibians and Reptiles.

NUSSBAUM, RONALD A. 1983. *Dicamptodon copei* Nussbaum.

Dicamptodon copei Nussbaum
Cope's Giant Salamander

Dicamptodon copei Nussbaum, 1970:506. Type-locality "Mar(r)atta Creek 85 m upstream from bridge on state highway 504, SW 1/4 sec. 3, T. 9 N., R. 4 E., 46°17'N, 122°18'W, 840 m elevation, Cowlitz County, Washington." Holotype, United States National Museum (USNM) 166784, mature male, collected 20 June 1969 by Ronald A. Nussbaum.

• CONTENT. No subspecies are recognized.

• DEFINITION. A species of *Dicamptodon* that rarely metamorphoses; sexually mature larvae range in size from 65–114 mm SVL. The dorsum is brown, often with yellowish-tan patches, and with numerous, light-colored, granular glands which are most conspicuous under the yellowish-tan patches. The tail is colored much like the dorsum with little or no mottling and without a black tip. The venter is white in small (<50 mm SVL) larvae and bluish-gray in larger individuals. The maximum width of the head is equal to or less than 1/5 of the SVL. There are 0.0–2.0 costal folds between the adpressed limbs. Tooth count ranges are 33–44 (maxillary + premaxillary) and 28–42 (vomerine). There are no palatopterygoid teeth. Ranges of gill raker counts per row per side are 6–7, 5–7, 5–7, 5–7, 4–6, and 3–5 (from anterior- to posteriormost rows).

• DESCRIPTIONS. Nussbaum (1970, 1976a) described the external morphology of juvenile and mature larvae in detail. He also described (*loc. cit.*) the external morphology of individuals forced to metamorphose by thyroxine treatment and of one individual thought to have metamorphosed naturally. Less detailed descriptions of larvae can be found in Smith (1978), Behler and King (1979), and Nussbaum et al. (1983). Altig (1973) described the keratinized toe tip. Nussbaum (1976a) described a few aspects of the skeleton.

• ILLUSTRATIONS. Black and white photographs of larval and metamorphosed individuals are in Nussbaum (1970, 1976a) and Nussbaum et al. (1983). Smith (1978) included a color illustration of an individual that was forced to metamorphose by thyroxine treatment, and Behler and King (1979) provided a black and white drawing of a mature larva. Nussbaum (1976a) presented x-ray prints of the skeleton of a mature larva. Altig (1973) published a scanning electron microscope print of a keratinized larval toe tip.

• DISTRIBUTION. *Dicamptodon copei* occurs in the coniferous forests of the Coast Range of western Washington state and extreme northwestern Oregon, on the western slopes of the Cascades Range of Washington from central Lewis County southward to the Columbia River, and in the Cascades Range of Oregon in the immediate vicinity of the Columbia River Gorge.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Nussbaum (1970) compared the morphology and thyroxine sensitivity of larval *Dicamptodon copei* to sympatric *D. ensatus*, the sole congener of the former. Nussbaum (1976a) studied geographic variation and distribution. Daugherty et al. (in press) confirmed the specific distinctness of *D. copei* through allozyme studies, and Nussbaum (1976a) compared the blood serum proteins of *D. copei* and *D. ensatus*. Nussbaum (1976b) demonstrated ontogenetic changes in the blood serum proteins of *D. copei* and compared the ontogenetic pattern of this species to that of four other northwestern ambystomatids. Mizuno and Macgregor (1974) compared HAP elution profiles and melting curves of DNA heteroduplexes between *D. copei* and *Plethodon cinereus* to the same properties of heteroduplexes between *P. cinereus* and other species of *Plethodon*. Antonelli et al. (1972) compared the food habits of *D. copei*, *D. ensatus*, and two species of fish in microsympatry. Nussbaum et al. (1983) presented the only data on reproduction and summarized the available information on life history, ecology, and distribution.

• ETYMOLOGY. The name *copei* is a patronym honoring one of America's most famous and productive herpetologists, Edward Drinker Cope.

COMMENT

Very few papers have been published concerning this species in the 13 years since it was described. Unpublished information of interest includes the fact that *Dicamptodon copei* has a diploid number of 28 chromosomes with a chromosomal pattern very similar to that of *D. ensatus*.

Only two naturally-occurring metamorphosed individuals of *D. copei* are known. The first specimen (USNM 64320) was collected 21 August 1921 along the Hoh River, Jefferson County, Washington. The second individual (Museum of Vertebrate Zoology 116631) was collected in 1973 by Dr. Robert C. Stebbins near Spirit Lake, Skamania County, Washington.

The type locality has not been visited by the author since the 18 May 1980 eruption of Mount St. Helens, but published maps and information from the U.S. Forest Service (Gifford Pinchot National Forest) indicate that the lower portion of Maratta Creek is now covered by 33 ± m of sediment.

LITERATURE CITED

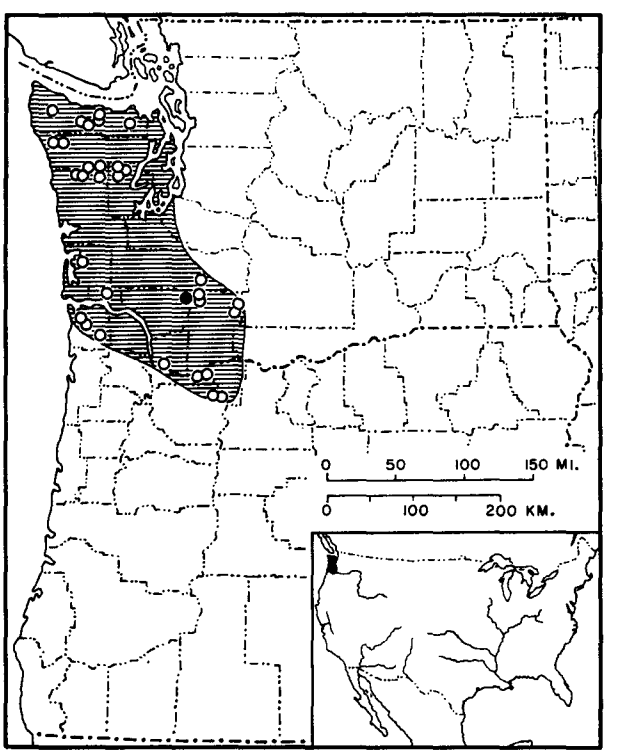
Altig, Ronald. 1973. Preliminary scanning electron observations of keratinized structures of amphibian larvae. H.I.S.S. News-Journal 1(4):129–131.

Antonelli, Arthur L., Ronald A. Nussbaum, and Stamford D. Smith. 1972. Comparative food habits of four species of stream-dwelling vertebrates (*Dicamptodon ensatus*, *D. copei*, *Cottus tenuis*, *Salmo gairdeneri*). Northwest Sci. 46(4):277–289.

Behler, John L., and F. Wayne King. 1979. The Audubon Society field guide to North American reptiles and amphibians. Alfred A. Knopf, New York, 719 p.

Daugherty, Charles H., Fred W. Allendorf, William W. Dunlap, and Kathy L. Knudsen. Systematic implications of geographic patterns of genetic variation in the genus *Dicamptodon*. Copeia, in press.

Mizuno, Shigeki, and Herbert C. Macgregor. 1974. Chromo-



MAP. Solid circle marks type-locality, hollow circles other localities.

somes, DNA sequences, and evolution in salamanders of the genus *Plethodon*. Chromosoma (Berl.) 48:239–296.

Nussbaum, Ronald A. 1970. *Dicamptodon copei*, n. sp., from the Pacific Northwest, U.S.A. (Amphibia: Caudata: Ambystomatidae). Copeia 1970(3):506–514.

— 1976a. Geographic variation and systematics of salamanders of the genus *Dicamptodon* Strauch (Ambystomatidae). Misc. Publ. Mus. Zool. Univ. Mich. (149):1–94.

— 1976b. Changes in serum proteins associated with metamorphosis in salamanders of the family Ambystomatidae. Comp. Biochem. Physiol. 53B:569–573.

—, Edmund D. Brodie, Jr., and Robert M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. University Press of Idaho, Moscow, in press.

Smith, Hobart M. 1978. Amphibians of North America. Golden Press, New York, 160 p.

RONALD A. NUSSBAUM, THE UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN 48109.

Primary editor for this account, Richard Highton.

Published 30 December 1983 and Copyright 1983 by the SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES.